characters such as papillate or scaly seeds may represent specialization and probably, therefore, are indicative of advanced types. However, it is to be wondered whether such a character as relatively simple leaves is to be considered always as necessarily primitive within the genus and whether the corresponding character of more deeply lobed leaves is to be considered necessarily as advanced. The same question might be raised concerning such characters as the relative density of the inflorescence and hairiness of the herbage. The writer is ignorant of the situation in the genus *Delphinium,* and it is quite possible that the primativeness of the characters as described by Mr. Ewan is correct.—Lyman Benson, Department of Botany, Pomona College, Claremont, California.

Forest Tree Breeding and Genetics. By R. H. Richens, M.A. Imperial Agricultural Bureaux, Joint Publication No. 8. November, 1945.

This bulletin is the most comprehensive of the relatively few British publications in the field of forest tree breeding. Its content may be summarized briefly.

A short preface and table of contents precede the fitting foreword by the well-known forester H. G. Champion. The introduction is primarily an argument supporting the need for forest tree breeding in England, seemingly with the intent of overcoming indifference to such work on the part of His Majesty's Forest Commissioners. The next eleven pages are devoted to a generalized (and excellent) discussion of the principles and fundamentals of forest tree breeding. A detailed text of 41 pages follows. The bulletin ends with a glossary, a summary in four languages, and 613 citations to literature on the subject.

According to the preface, the objective of this publication was "to collate the literature on forest tree breeding that has appeared since 1930." This has been done by selecting for discussion 22 topics such as "natural variation," "quality," "selection," "hybridization." The literature on each of the 31 included genera of forest trees is systematically reviewed with relation to the 22 topics chosen.

The table of contents, a very ingenious device, permits ready reference to any one of the 22 topics as it relates to any of the 31 genera considered.

Careful study of the genera treated and the topics discussed reveals that very little recent literature on the subject of forest tree breeding would be excluded in the screening provided by the plan of the bulletin. While it is possible that some publications on the subject may have escaped the attention of the author, due to the war-torn condition of the world for the past few years, it is doubtful whether any considerable amount has thus been overlooked. Furthermore, frequent citations to unpublished material

and ideas indicate that the author canvassed contemporary students of the field in an effort to bring his contribution strictly up to date.

After a study of the literature, the author selected for citation what he considered best. Many papers describing purely local work and papers that are repetitive have not been included. These may be exemplified by the numerous, but not too important, dialectics emanating from central Europe during the mid-thirties in which were debated the relative value of various criteria for distinguishing geographic races of trees.

In terse style the author summarizes the information available on each topic, citing the publications from which the information was extracted. It is difficult to find a phase of forest tree breeding which has been investigated that is not mentioned. Students can find no better guide to the literature on the subject for the time period covered than this bulletin. It will become a permanent point of reference in the literature of forest tree breeding.

I feel that there will be disappointment, however, on the part of the forester or tree breeder when he has finished perusing this pamphlet, not because of the way it is done but rather because it does not go further into the subject. The condensed treatment prevents the author from expanding the ideas presented and in some places the presentation itself suffers from brevity. Also, a critical comparison and evaluation, by Mr. Richens, of the literature on controversial issues has not been possible in the allotted space.—W. P. Stockwell, In Charge, Institute of Forest Genetics, California Forest and Range Experiment Station.

NOTES AND NEWS

Stipa arida in Nevada. In June of 1940 in Nevada, I collected an unusual *Stipa* growing with the rare *Blepharidachne Kingii* (S. Wats.) Hack. on extremely dry lava beds five miles southwest of Lockes, Nye County, Nevada (lat. 38° 28′ N., long. 115° 52′ W., *Pohl 2073*). Dr. F. J. Hermann of the National Arboretum Herbarium, Beltsville, Maryland, kindly identified the *Stipa* for me as *S. arida* M. E. Jones, a plant hitherto known only from Colorado, Utah and Arizona. The Nevada specimens correspond very closely in spikelet characters to material of the type number (*Jones 5377*) in the United States National Herbarium. They are considerably more mature than the Jones specimen, however, and show certain features of the fruit which are not well exhibited in the latter. The body of the fruit becomes a golden brown at maturity. The awn, while frequently merely somewhat flexuous, may at full maturity develop a definite geniculum about a centimeter above its base. The proximal portion of the awn, below this geniculum, becomes brown in color like the body of the fruit, and is banded with whitish stripes along the edges of the loose